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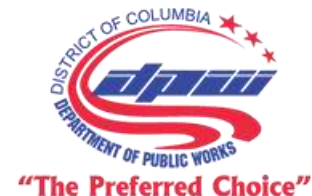
*Briefing on:*

*Draft Report &  
Recommendations*

*Briefing for:*

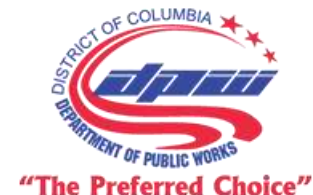
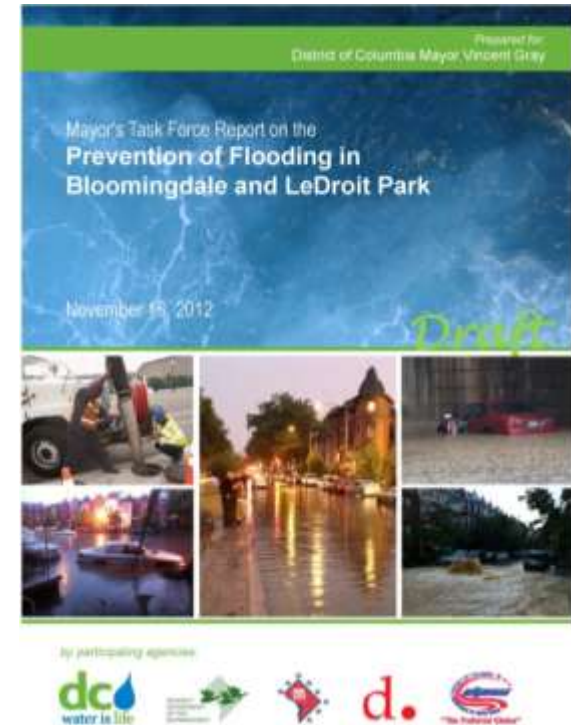
*Mayor's Task Force on the Prevention of Flooding in  
Bloomingdale and LeDroit Park*

**December 6, 2012**



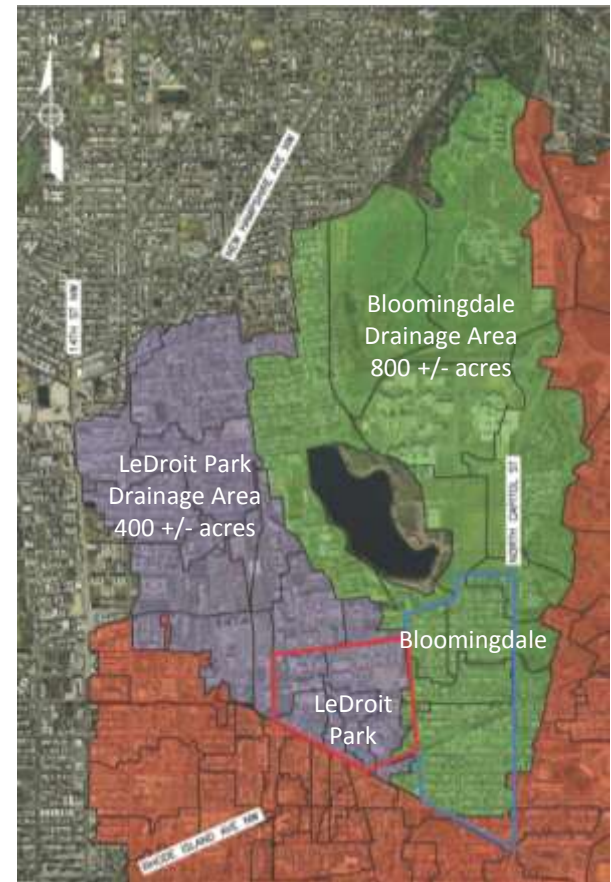
# Agenda

- Task Force Report Overview
  - Section 1 - Introduction
  - **Section 2 – Existing Conditions**
  - **Section 3 – Analysis of 2012 Flood Events**
  - Section 4 – Methodology for Mitigation Strategies
  - **Section 5 – Alternatives to Address Flooding**
  - **Section 6 – Regulatory**
  - Section 7 – Storm Preparedness and Response
  - Section 8 – Project Financing
  - **Section 9 – Recommended Plan**
- Recommendations
  - Engineering Measures
  - Regulatory
  - Code Changes
  - Operations & Maintenance
  - Public Outreach



# Section 2 - Existing Conditions

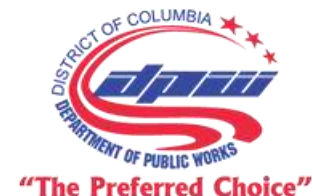
- Drainage Area Boundaries
- Sewer System Description
- Historical Development of Sewershed
- Prior Studies
  - 7 studies from 1955-2006
- Future Development Projects
  - McMillan & AFRH in Bloomingdale Drainage Area
  - Others proposed in Northeast Boundary Drainage Area



# Section 3 - Analysis of 2012 Flood Events

- Rainfall Conditions
- Sewer System Operation
- Impacts to Properties
- Storm Response
- Cause of Flooding
  - Sewer Capacity Exceeded
  - Inadequate Inlet Capacity
  - Other Possible Causes Investigated (not linked)

Date	Duration	Rainfall	NOAA Point Precipitation Frequency (Nearly)
7/10/2012	1-hour	1.96"	10 year storm
7/18/2012	30-minute	1.35"	5 year storm
7/19/2012	15-min	0.94"	5 year storm
9/2/2012	2-hour	2.78"	10 year storm



# Section 5 - Alternatives to Address Flooding

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## Engineering Alternatives Evaluated:

### ■ Medium Term

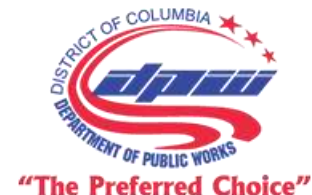
- Storage at McMillan Site
- McMillan Storage and Flagler Place Pump Station
- McMillan Storage and First Street Tunnel
- Conveyance to Tiber Creek
- Rain Barrels – Upstream Installation
- Green Infrastructure Expansion
- Catch Basin Inlet Restrictors
- Inflatable Flood Walls

### ■ Long Term

- DC Clean Rivers First Street Tunnel

### ■ Short Term

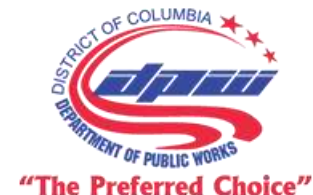
- Backwater Valves
- Engineering Consultations
- Removable Barriers
- Rain Barrels
- Green Infrastructure
- Catch Basins
- Detention Vaults



# Section 6 - Regulatory Overview

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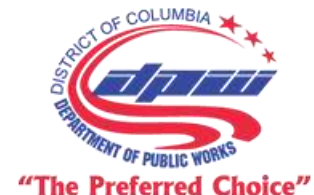
- Backwater Valves
- Basement Conversions
- FEMA Insurance Options
- Legislative Proposals to Address Flooding
- Historic Preservation Guidelines
- Water and Sewer Availability Permitting Process



# Section 7 - Storm Preparation and Response

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- Citizen Storm/Flood Preparedness
- Flood Protection & Homeowner Toolkit
- Community Outreach & Communication
- Agency Coordination of Storm Response
- Voluntary Home Inspections for Environmental & Health Hazard
- Managing Stress During Emergency Situations





# Long Term Recommendations for Bloomingdale & LeDroit Park: Schedule & Budget

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## Benefits

- 2025 completion in accordance with Consent Decree
- 2022 accelerated completion date is possible with District's assistance

## DC Government assistance to include:

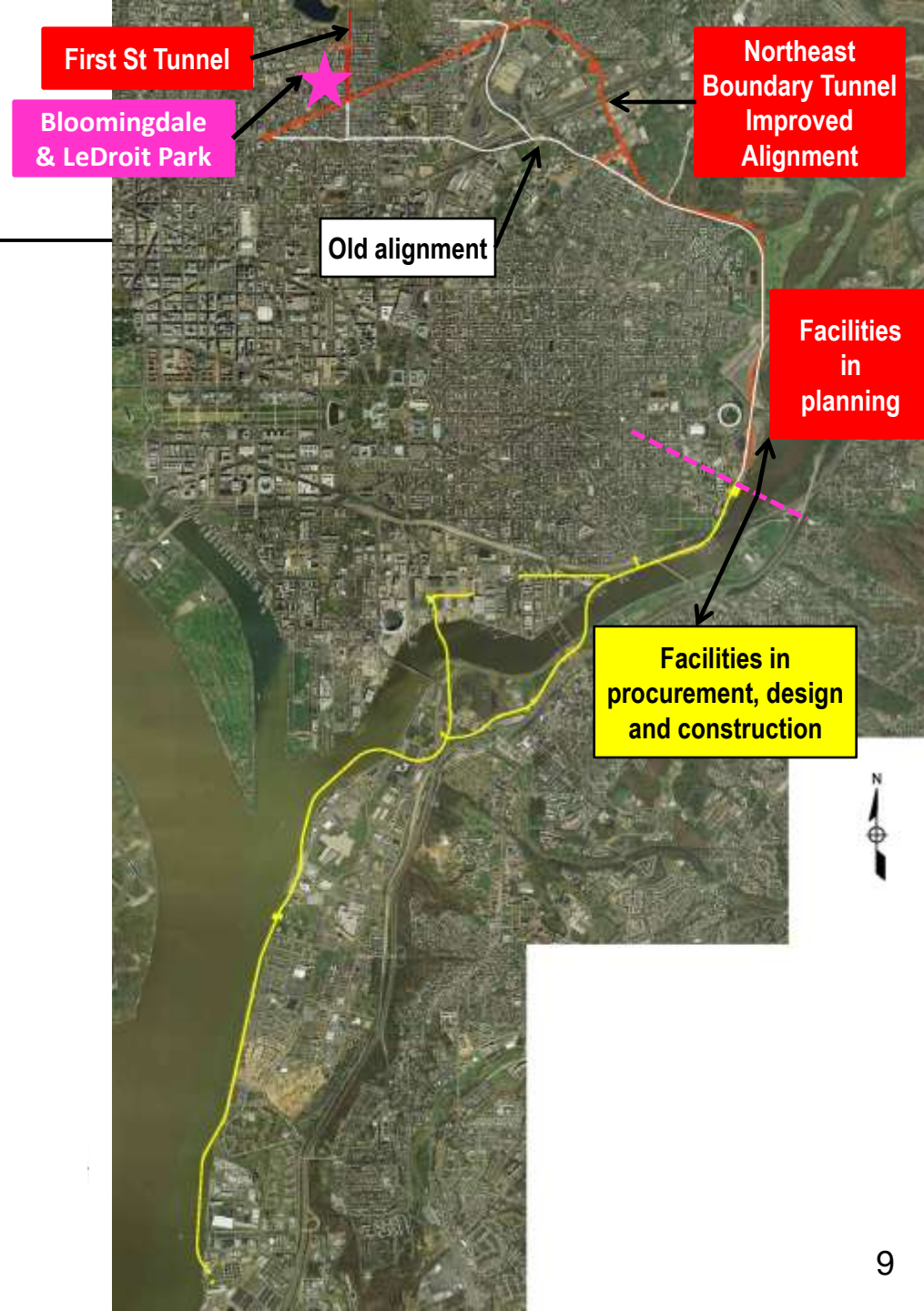
- City Administrator appoints champion
  - Task Force
  - Empowered to direct agencies
  - Dedicated District agency staff co-located with project team
- Eminent domain
- Permanent property acquisition
- Easements
- Expedited permit review
- Allow necessary street closures, work hours, etc. for construction operations
- Waive permit fees
- Funding assistance from DC Government
- Support Federal funding requests to limit rate increases

**Total estimated budget = \$500-\$600M**



## Long Term Recommendations for Bloomingdale & LeDroit Park

- Northeast Boundary Tunnel was planned to meet Consent Decree deadlines
- New alignment selected to reduce risk and allow more certain delivery of flood relief to Bloomingdale & LeDroit Park
- Consent Decree schedule:
  - Facilities south of RFK - 2018
  - Facilities north of RFK - 2025

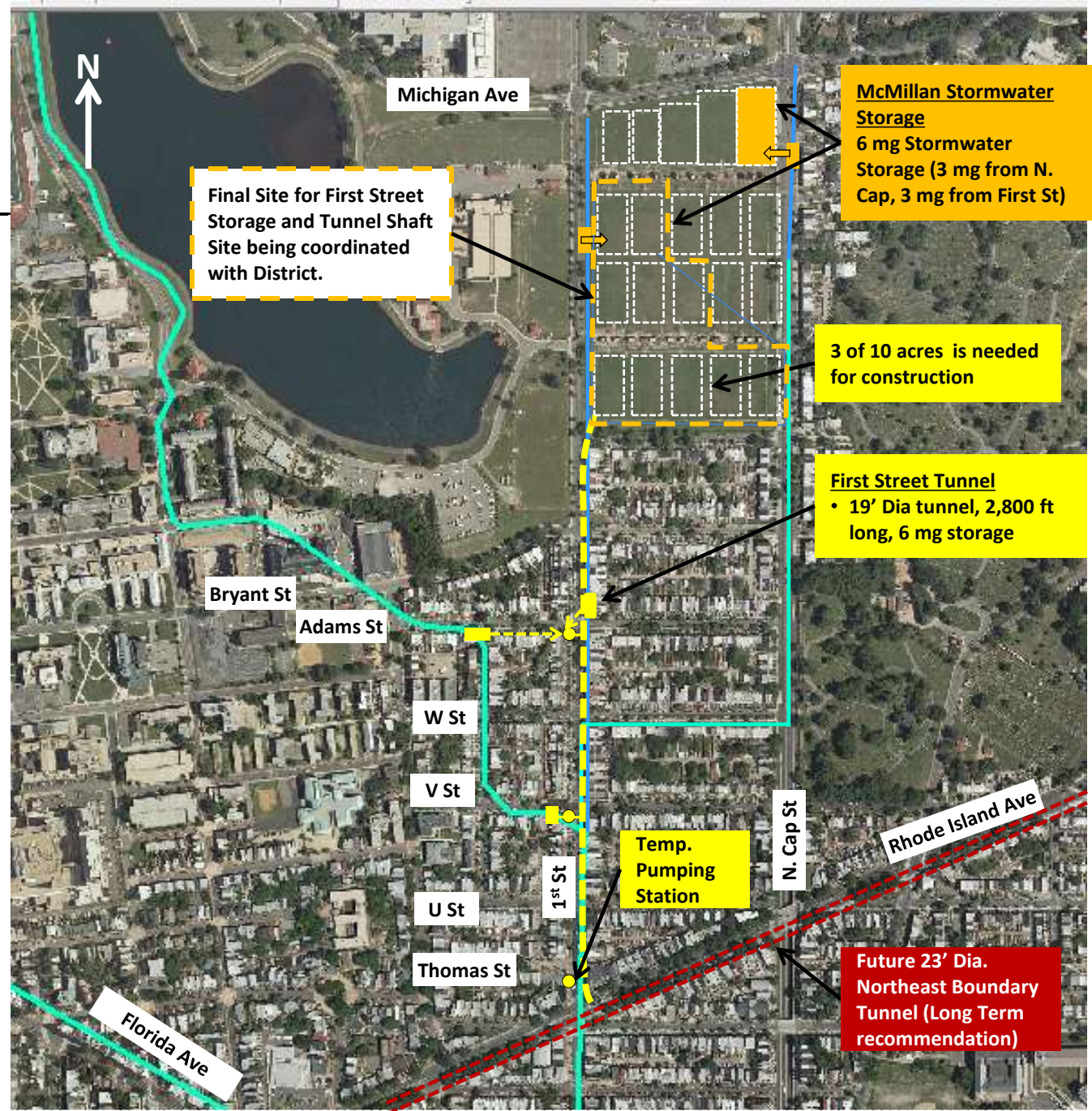




# Medium Term Recommendations for Bloomingdale & LeDroit Park

## Four recommendations:

1. McMillan Storm Water Storage
2. First St Tunnel
3. Rain Barrel Program
4. Green Infrastructure



# Medium Term Recommendations for Bloomingdale & LeDroit Park: Scope, Schedule & Budget

Item	McMillan Storm Water Storage <sup>1</sup>	First Street Tunnel <sup>1</sup>	Rain Barrel Program	District Green Infrastructure
Scope	<ul style="list-style-type: none"> <li>• 6 ± mg storage of stormwater</li> <li>• 3 mg from N. Cap. Storm sewer</li> <li>• 3 mg from 1<sup>st</sup> St. storm sewer</li> </ul>	<ul style="list-style-type: none"> <li>• 6 ± mg total storage of CSO</li> <li>• Need 3 ac for construction, 1/3 ac for permanent facilities</li> <li>• Temporary pumping station at 1<sup>st</sup> &amp; Rhode Island – demolish and connect to Northeast Boundary Tunnel when it's completed</li> </ul>	<ul style="list-style-type: none"> <li>• Extend program to entire drainage area with 80% rebate (increase of 1,000 barrels/ cisterns)</li> </ul>	<ul style="list-style-type: none"> <li>• District to invest \$10 M in green infrastructure in Bloomingdale / LeDroit park in public space</li> <li>• leverage existing DDOE green roof program</li> </ul>
Temporary or Permanent?	Temporary - until Northeast Boundary Tunnel in service	Permanent	Temp. program / Permanent infrastructure	Permanent
Schedule	In service by spring 2014 <sup>1</sup>	In service by spring 2016 <sup>1</sup>	Next 3 yrs	Next 5 yrs
Cost	\$12 M	\$132 M	\$0.3M	\$10 M
Administrative responsibility	DC Water	DC Water	DDOE	DDOT / DDOE
Fiscal responsibility	TBD	TBD	TBD	TBD

**Note:**

1. Schedule contingent on District assistance as described on previous slide

# Short Term Recommendations for Bloomingdale & LeDroit Park: Scope, Schedule & Budget

Item	Backwater Valve Program	Removable Barrier Program	Rain Barrel Program	District Green Infrastructure
Scope	<ul style="list-style-type: none"> <li>Strongly recommended for approx. 200 homes with reported backups in summer 2012; up to \$5,000 rebate</li> <li>Refine voluntary eligibility area; fund BV installation for approx. 1,000 homes; up to \$5,000 rebate</li> </ul>	<ul style="list-style-type: none"> <li>Provide free engineering consultations</li> <li>Up to \$3,000 rebate for improvements</li> </ul>	<ul style="list-style-type: none"> <li>Program in place includes funding for approximately 250 rain barrels; homeowner copay is waived</li> </ul>	<ul style="list-style-type: none"> <li>Program in place includes rain gardens and pervious paving near Rhode Island Avenue &amp; First Street, NW</li> </ul>
Temporary or Permanent?	Temporary - until Northeast Boundary Tunnel in service	Temporary - until Northeast Boundary Tunnel in service	Temporary – until \$250k funding is exhausted	Permanent
Schedule	Implement until Northeast Boundary Tunnel in service	Next 3 years	<6 months	<6 months
Cost	Up to \$6 M	\$.375 M	\$0.250 M	\$1.1 M
Administrative responsibility	DCRA / DGS	DCRA / DGS	DDOE	DDOT
Fiscal responsibility	TBD	TBD	DC Water	DC Water

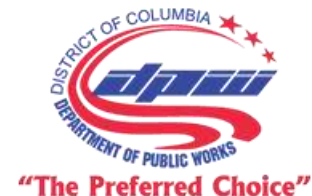
# Predicted Performance of Recommended Plan

Condition	Design Storm (6-hrs)	Major Components	Schedule	Street Ponding Depth			Water Level in Sewers			Mitigates Surface Flooding?	Mitigates Sewer Backups?
				RI Ave Bet 1 <sup>st</sup> & 2 <sup>nd</sup>	Flagler & V St	U St & 1 <sup>st</sup> St	RI Ave & 1 <sup>st</sup> St	Flagler & V St	U St & 1 <sup>st</sup> St		
Existing Conditions	5-year (2.8")	Existing Conditions		Predicted average ponding depth up to 22" deep			Basement backups predicted			No	No
Short Term Improvements	5-year (2.8")	<ul style="list-style-type: none"> <li>Backwater Valve and Floodproofing Program</li> <li>Rain Barrel Program</li> <li>Green Infrastructure Program</li> </ul>	2013 2013 2013	Some improvement, difficult to quantify			Some improvement, difficult to quantify			Yes, for properties with flood-proofing	Yes, for properties with Backwater Valves
Medium Term Improvements	5-year (2.8")	<ul style="list-style-type: none"> <li>6 million gallons storm water storage at McMillan sand Filter Site</li> <li>First Street NW Tunnel</li> <li>Rain Barrel Program</li> <li>Green Infrastructure Program</li> </ul>	2014  2016 2016 2018	<2"	<2"	<2"	Mostly contained within sewer for 5 year storm			Yes	Yes
Long Term Improvements	5-year (2.8")	<ul style="list-style-type: none"> <li>Northeast Boundary Tunnel</li> </ul>	2022	Minimal			Contained within sewers			Yes	Yes
	15-year (3.7")			<2"			Contained within sewers			Yes	Yes



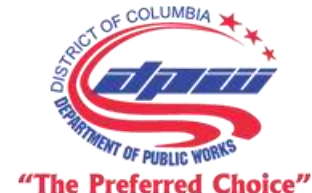
# Regulatory Recommendations for Bloomingdale & LeDroit Park

No.	Recommendation Description	Justification	Responsibility
1-9	Short, Medium, and Long Term Engineering projects.	Phased rollout of flood mitigation and property protection strategies. <i>(Report Section 5)</i>	DC Water / DDOT / DDOE / DGS / DCRA
10.	DCRA needs to be more proactive with their authority to investigate illegal basement apartments based on tips/complaints.	Illegal basement conversions increase the risk of sewer backups <i>(Report Section 6.2.4)</i>	DCRA
11.	<p>Future development in Bloomingdale/LeDroit Park sewershed (properties more than 1 acre)</p> <ul style="list-style-type: none"> <li>• Allow sanitary discharges for future development</li> <li>• On private and public property (new streets in new development) – require that stormwater peak discharge for post development be limited to predevelopment conditions for 25-year 24-hour storm (4" total rainfall). Relaxed to standard DDOE stormwater regulations once tunnel is in place.</li> </ul>	Prevent increase of sewer backups & surface flooding <i>(Report Section 6.6)</i>	DCRA / Office of Planning / DMPED / DDOE / DC Water / DDOT



# Regulatory Recommendations for Bloomingdale & LeDroit Park

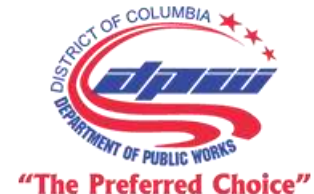
No.	Recommendation Description	Justification	Responsibility
12.	<p>Insurance</p> <ul style="list-style-type: none"> <li>Require homeowners to provide proof that sewer backup rider has been purchased prior to reimbursing for BFP rebate</li> <li>Require real estate disclosure form when buying house acknowledging being offered or informed about sewer backup rider on insurance</li> <li>Require insurance companies provide statement of additional optional coverage available, including for homeowner's and rental insurance</li> </ul>	Encourage residents to purchase maximum available insurance protection ( <i>Report Section 6.3</i> )	DISB / DCRA / DGS
13.	Require licensing for home inspectors, which would include procedure for inspecting backwater valve/grinder pump/sewage ejector	Encourage awareness of sewer backups ( <i>Report Section 6.4.4</i> )	DCRA
14.	Explore the need or benefit to reinstating the District of Columbia Soil and Water Conservation District.	Dedicated group focused on impacts of stormwater runoff from new construction / development ( <i>Report Section 9.2.5</i> )	DDOE





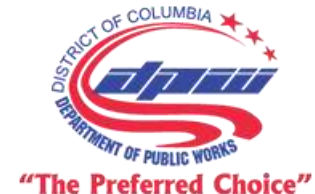
# Code Change Recommendations for Bloomingdale & LeDroit Park

No.	Recommendation Description	Justification	Responsibility
15.	For new construction or where renovation costs exceed 50% of assessed value, grinder pump / sewage ejector system with battery backup is required if lowest floor elevation is lower than manhole rim	Grinder pump / sewage ejector more reliable than BWVs ( <i>Report Section 6.1.5</i> )	DCRA / DC Water
16.	Require real estate disclosures when selling property: <ul style="list-style-type: none"> <li>Backflow preventer or grinder pump / sewage ejector system is present / not present and stated risks</li> <li>Amend existing disclosure form to include known sewer backup or surface flooding occurrences</li> </ul>	Encourage awareness of sewer backups ( <i>Report Section 6.4.5</i> )	DCRA / DGS
17.	Backwater valve may be installed on one lateral that serves properties with multiple floors (two laterals not required). Rain leaders must be disconnected.	Reduce burden of BWV installation ( <i>Report Section 6.1</i> )	DCRA / DC Water
18.	Threshold must be min 12" above curb elevation for basement entrances on new construction/renovations.	Add protection from surface flooding ( <i>Report Section 6.2.6</i> )	DCRA
19.	Connect stairway drains to sump pump or grinder pump / sewage ejector system new construction / renovations.	Reduce potential for sewer backups ( <i>Report Section 6.2.5</i> )	DCRA / DC Water



# Operations & Maintenance Recommendations for Bloomingdale & LeDroit Park

No.	Recommendation Description	Justification	Responsibility	
			Admin	Fiscal
20.	Increase catch basin cleaning frequency in Bloomingdale/LeDroit park to quarterly	Reduce surface flooding ( <i>Report Section 7</i> )	DC Water	DC Water
21.	Distribute sandbags to residents for advance preparation, not only in response to storm forecast.	Reduce impacts of surface flooding on private properties ( <i>Report Section 7</i> )	DPW	(\$55k needed)
22.	Establish regular program of door-to-door flier distribution with emergency response information	Increase public awareness	ONE/HSEMA	N/A



# Public Outreach Recommendations for Bloomingdale & LeDroit Park

No.	Recommendation Description	Justification	Responsibility	
			Admin	Fiscal
23.	Install and operate permanent automated flood warning signage on RI Ave to issue flood warning and emergency response information	Increase public awareness	DDOT	(\$100k needed)
24.	DOH and DMH organize roundtable with residents to discuss anxiety/stress/fear.	Increase public awareness and share coping strategies	DOH/DMH	N/A
25.	Educate homeowners about Backwater Valve installation and separate lateral requirements, including the possibility of waiver by code officials to allow single lateral connection. (Related to Recommendation 16)	Increase public awareness	DC Water	N/A

